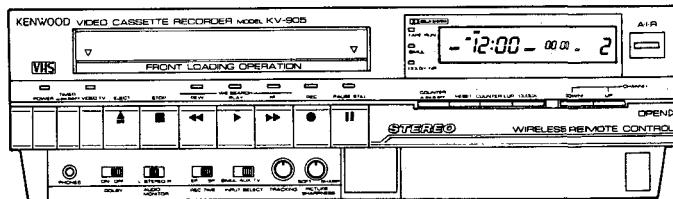


COLOR VIDEO CASSETTE RECORDER

KV-905

INSTRUCTION MANUAL



For Customer Use:

Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. **KV-905**

Serial No. _____

KENWOOD

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Unpacking

Unpack the unit carefully and make sure that all accessories and cables are put aside so they will not be lost. Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.

We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

DOLBY and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

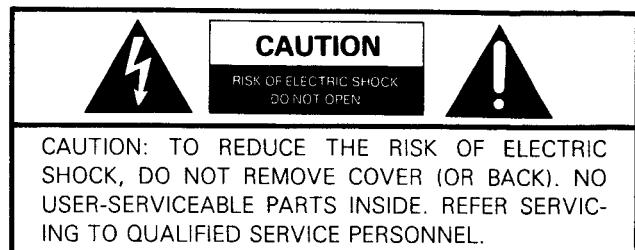
Noise reduction circuit made under license from Dolby Laboratories Licensing Corporation.

Note to CATV system installer

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



Only cassettes marked "VHS" can be used with this video cassette recorder.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

This video cassette recorder should be used with 120 V, 60 Hz AC only.

CAUTION:

To prevent electric shocks and fire hazards, do NOT use any other power source.

CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

Warning to purchasers:

One Federal Court has held that in-home use of videotape recorders for off-air recording of copyrighted television programming is copyright infringement.

CAUTION

When you are not using the KV-905 for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

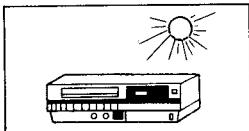
NOTE: The rating plate and the safety caution are on the rear of the unit.

Precautions

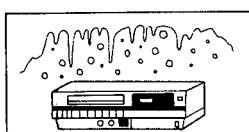
Handling and storage

Avoid using the recorder under the following conditions:

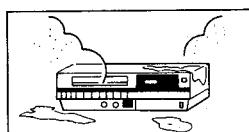
- extremely hot places.



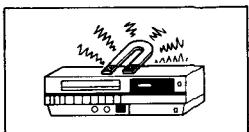
- cold places.



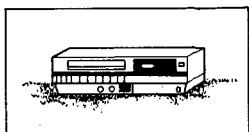
- humid, dusty places.



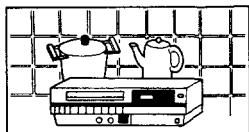
- near appliances generating strong magnetic fields.



- places subject to vibrations.

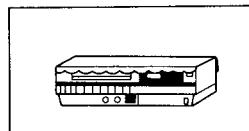


- poorly ventilated places.

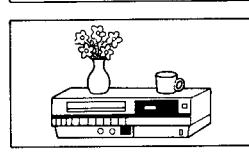


Handle the recorder carefully

- Do not block the ventilation openings.

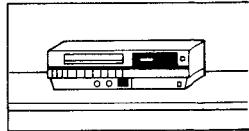


- Do not place anything heavy on the recorder.

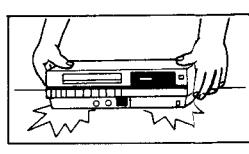


- Do not place anything which might spill and cause trouble on the top cover of the recorder.

- Use in horizontal (flat) position only.



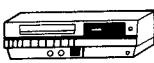
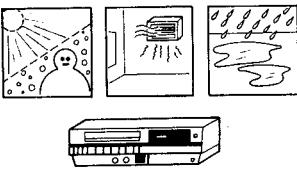
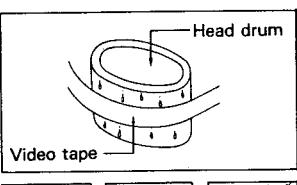
- Avoid violent shocks to the recorder during packing and transportation.



- Before packing, be sure to remove the cassette from the recorder.

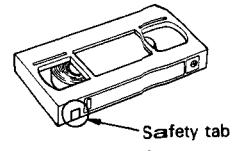
Moisture condensation

- If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the video recorder will cause damage to the tape.
- Moisture in the air will condense on the recorder when you move it from a cold place to a warm place after heating a cold room or under extremely humid conditions.
- This recorder is equipped with a moisture condensation prevention circuit which automatically heats the head drum according to the ambient temperature. This circuit operates only when the unit is plugged into an AC outlet, and the front panel POWER button is set to OFF.
- The moisture condensation prevention circuit consumes only a slight amount of power. However, if for some reason you are not using the recorder for a long period of time, it is advisable to remove the power cord from the AC outlet.
- Since the moisture condensation prevention circuit cannot evaporate existing moisture condensation immediately after the power cord has been plugged into the AC outlet, you must allow for about 2 hours if the recorder is to be used in such areas as would occasion moisture condensation.

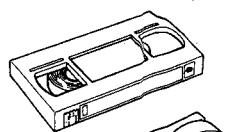


Video Cassettes

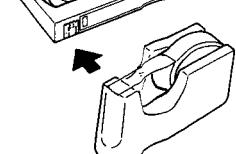
- This recorder employs VHS type cassettes only.



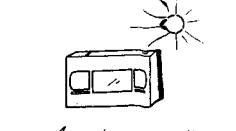
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed if you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



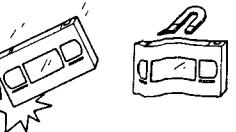
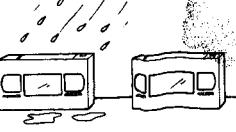
- Place the cassettes in cassette cases and position vertically.



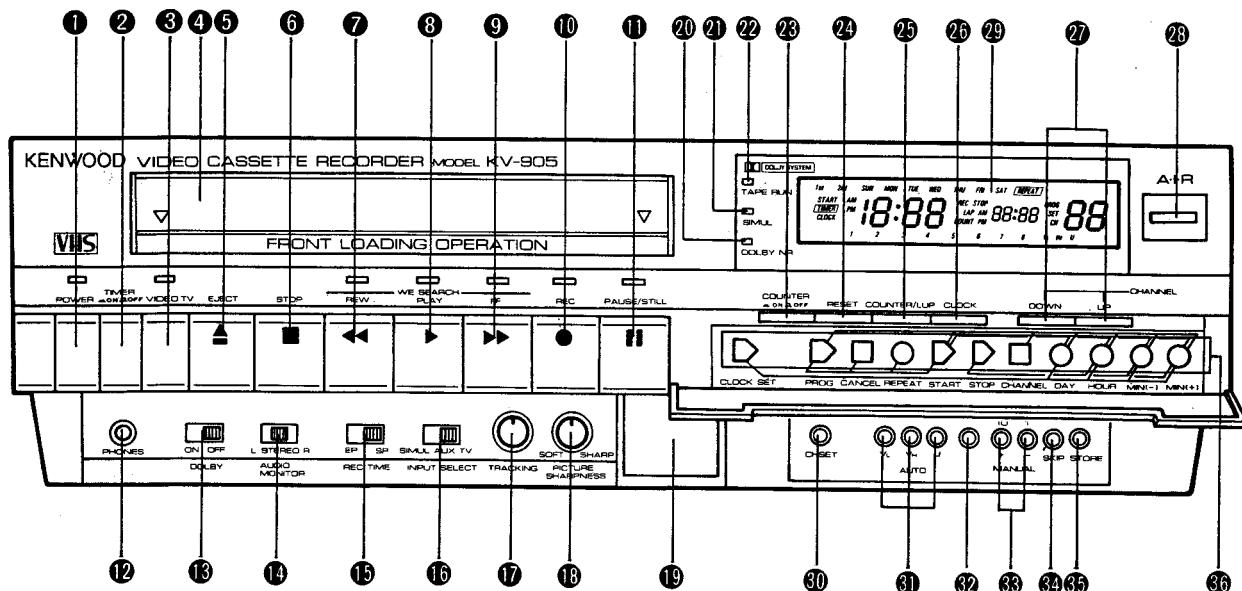
- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.



- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or a magnet) and dusty places.



Controls and indicators



① POWER button

Press to apply power to the recorder. The POWER indicator will light.

② TIMER button

Press to ON (—) after you have preset the recorder for unattended recording.

③ VIDEO/TV button

Selects between TV and VIDEO modes.

TV mode (the indicator is off): for TV viewing and for watching a TV program while recording another.

VIDEO mode (the indicator lights): for recording TV program while watching it and for playing back recorded tapes. If the VIDEO indicator lights when the POWER button is pressed to ON, the recorder is in the VIDEO mode. If you want to engage the TV mode, press the VIDEO/TV button so that the indicator extinguishes. If the indicator does not light when the POWER button is pressed to ON, the recorder is in the TV mode. If you want to engage the VIDEO mode, press the VIDEO/TV button so that the indicator lights.

④ Cassette loading slot

Insert a video cassette. The door will close and the indicator (—) showing that a cassette is inside will appear.

⑤ EJECT button

Press to eject the cassette.

⑥ STOP button

To stop the tape.

⑦ REW/VUE SEARCH button

To rewind the tape, press this button while in the Stop mode. To view the speeded-up picture in the reverse direction for program search, hold this button pressed while in the Play mode.

- No picture appears on the TV screen while operating the VUE search in the LP mode.

⑧ PLAY button

Press to play back the tape or cancel the Pause/Still mode. Also, press this button together with the REC button ⑩ for recording.

⑨ FF/VUE SEARCH button

To fast forward the tape, press this button while in the Stop mode. To view the speeded-up picture in the forward direction for program search, hold this button pressed while in the Play mode.

- No picture appears on the TV screen while operating the VUE SEARCH in the LP mode.

⑩ REC button

Press together with the PLAY button ⑧ for simultaneous video and audio recording.

⑪ PAUSE/STILL button

Press to stop the tape temporarily to avoid recording of unwanted material or to view a still picture. The still picture can be advanced in a frame-by-frame manner each time this button is pressed. Holding this button pressed continuously advances the picture in a frame-by-frame manner.

⑫ Headphone jack (PHONES)

Connect a set of headphones for monitoring or private listening. The headphone output level is switchable with a switch on the bottom of the unit. (See page 14.)

⑬ Dolby* noise reduction switch (DOLBY)

Set to ON to activate the built-in Dolby NR circuit to minimise tape hiss. Recordings made with this switch set to ON should be played back with the switch set to ON. The sound quality is not improved if non-Dolbyized recordings are played back with the DOLBY switch set ON, but the tone differs from the original.

⑭ AUDIO MONITOR select switch

For selecting the playback output signal.

L To listen to the sound on the left channel track.

STEREO To listen to the sound from stereophonic tapes.

R To listen to the sound on the right channel track.

⑮ REC TIME select switch (SP/EP)

Set to SP when you wish recordings to be made in the Standard mode with better picture and sound quality. Set to EP (Extended Play) when you wish to record longer TV shows or for unattended and prolonged recording of a number of TV shows with a combined time of up to 8 hours. This switch has no effect during playback.

⑯ INPUT SELECT switch

For selecting the recording input signal.

TV To record signals coming from the built-in tuner.

AUX To record signals coming from the units connected to the rear panel VIDEO and AUDIO connectors.

SIMUL To record the video signal from the built-in tuner and the audio signal from the rear panel AUDIO connector. When recording FM simulcast TV programmes, use this position.

⑯ TRACKING control knob

Turn this knob to minimize noise bars, if observed during playback.

⑰ PICTURE SHARPNESS control knob

Turn this knob clockwise to make the picture sharper. Turn counterclockwise to give the picture a softer tone.

Effective only for playback pictures.

⑲ Infrared beam receiving window**⑳ DOLBY NR indicator**

Lights when the DOLBY switch ⑯ is set to ON.

㉑ SIMUL indicator

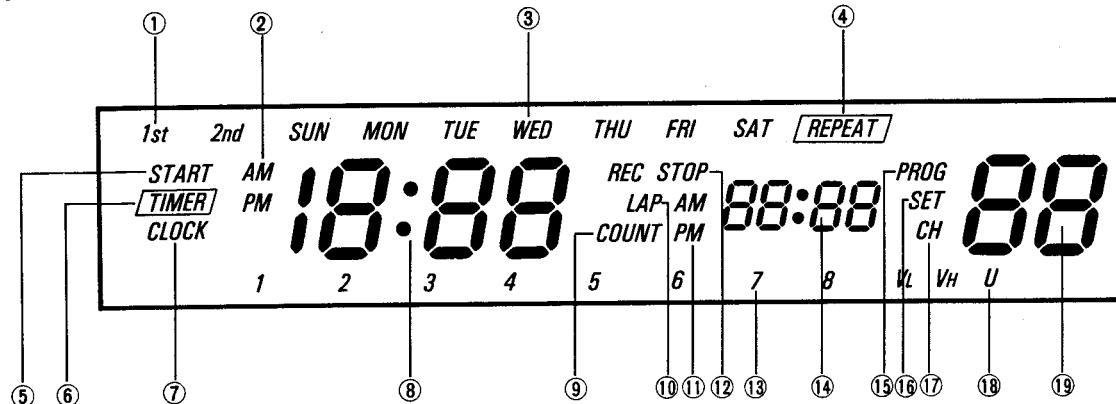
Lights when the INPUT SELECT switch ⑯ is set to SIMUL, indicating that the video signal is being recorded from the built-in tuner and the audio signal is being recorded from a source connected to the rear panel AUDIO IN connectors.

㉒ TAPE RUN indicator

Blinks to show the condition of tape running.

㉓ COUNTER MEMORY button

When this button is pressed to ON (—), the tape will stop automatically at the counter reading of about "0000" in the Rewind or Fast Forward mode.

**㉔ Fluorescent display section****① Week indicator**

"1st" or "2nd" illuminates to show the week for making preset recordings. "1st" stands for the period within one week and "2nd" within the second week from setting.

② AM/PM indicator**③ Day indicator**

Illuminates both for continuous day indication and for day presetting for future recordings.

④ REPEAT indicator

Illuminates when the REPEAT button is pressed to show that the entered data for timer recording will be retained for serial recordings.

⑤ START indicator

Flashes for switch-on time setting.

⑥ TIMER indicator

Illuminates when the TIMER button is pressed ON (—) to show that the recorder has been properly preset for timer recording.

⑦ CLOCK indicator

Always illuminates except in the Program Set mode.

⑧ Clock/Start time display**⑨ COUNT indicator**

Illuminates to show that the digits in the display to the right are the counter reading.

⑩ LAP indicator

Illuminates to show that the digits in the display to the right are the reading for the elapsed recording time.

⑪ AM/PM indicator**㉕ Counter/Lap RESET button**

Press to reset the tape counter reading to "0000" or lap time counter reading to "0:00".

㉖ COUNTER/LAP button

Press to switch the middle 4-digit display from tape counter to lap time counter, or vice versa. (See page 16.)

㉗ CLOCK button

Press this button to change the display from the Program Set mode to the Clock mode.

㉘ CHANNEL UP and DOWN buttons

Press to tune to preset stations; Up for scanning in the direction of increasing channel numbers and Down in the direction of decreasing channel numbers. The selected channel will appear in the channel display.

㉙ A-I-R button

Use this button to start recording instantly and stop automatically after a predetermined time. (See page 20.)

㉚ REC STOP indicator

Flashes or illuminates in the Instant Recording mode. Only STOP flashes for switch-off time setting.

㉛ Program number indicator

Numerals 1 through 8 illuminate successively each time the PROG. NO. button is pressed to show which program is ready for entry.

㉜ Stop time/Elapsed time/Counter display**㉝ PROG indicator**

Flashes to show that the channel is ready to be entered for timer recording.

㉞ SET indicator

Illuminates when the CHANNEL SET button is pressed for pre-tuning and flashes during sweep scanning.

㉟ CH indicator

Illuminates to show that the displayed channel is currently being received by the built-in tuner.

㉞ Band indicators (VL, VH, U)

Flashes when the corresponding AUTO button is pressed, showing that sweep scanning of that particular frequency band is being performed. Also functions during manual tuning using the MANUAL "+" or "-" button.

㉞ Channel display

Either channel position numbers 1 through 16 or real channel numbers 2 through 13 and U1 to U4 are successively displayed depending on the selected mode. After pre-tuning, the real channel numbers can be changed to correspond to actual preset station channels. (See page 11.)

⑩ CH SET button

Press this button when you pre-tune the built-in tuner to TV stations in your area. (See pages 10 and 11.)

⑪ AUTO buttons (V_L, V_H, U)

Press one of the buttons corresponding to the band in which you want to perform tuning. Automatic sweep tuning is initiated by pressing this button and stops automatically when a TV station is captured.

⑫ CH NO. SET button

For setting the displayed channel numbers to correspond to actual TV station channels instead of the initially set 2

through 13 and U1 through U4. Pressing this button changes the function of the MANUAL tuning buttons ⑬.

⑬ MANUAL tuning buttons

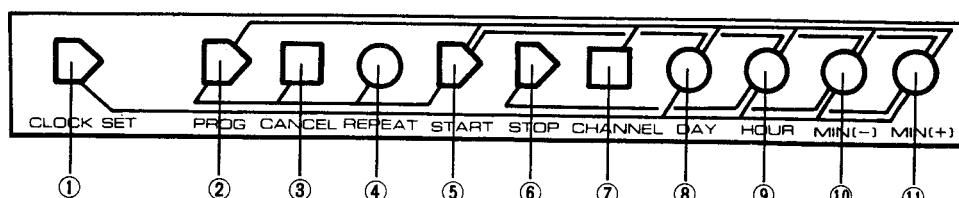
For manual tuning to weaker broadcast signals or for changing the displayed channel numbers. (See page 11.)

⑭ SKIP button

To skip unused channels. (See page 11.)

⑮ STORE button

To store the tuned-in station in memory. (See page 10 and 11.)



⑯ Clock and timer setting section

① CLOCK SET button

Hold this button pressed for clock setting.

② Program number button (PROG.)

Press this button when you want to preset the timer for unattended recording. The entire display will change to the Program Set mode, with numeral 1 illuminated at the bottom of the display. This shows the program memory No. 1 is ready to accept entries. To change the program number, press this button until the number of the program memory you want to use illuminates.

③ CANCEL button

Press this button to cancel or "clear" the preset data.

④ REPEAT button

After you have entered all programming data for unattended recording, if you wish the entered data to be kept for serial recording, press this button.

⑤ START button

Press for setting the day and switch-on time for automatic timer recording.

⑥ STOP button

Press for setting the switch-off time for automatic timer recording.

⑦ CH SET button

Press this button and then use the CHANNEL UP/DOWN button ⑦ to obtain a desired channel indication on the display.

⑧ DAY button

Press until a desired day indication appears on the display for clock and timer settings.

⑨ HOUR button

Press to obtain a desired hour indication for clock and timer settings.

⑩ MIN (-) button

Press to decrease the minute indication for clock and timer settings.

⑪ MIN (+) button

Press to increase the minute indication for clock and timer settings.

⑯ UHF IN antenna terminals

Connect the feeder from the UHF antenna to these terminals.

⑰ UHF OUT antenna terminals

Connect these terminals to the UHF antenna terminals of a TV receiver with UHF antenna cable.

⑱ RF output channel select switch (CH 3/4)

Initially set to CH3. If channel 3 is occupied by a broadcast, reset this switch to CH4.

⑲ Remote PAUSE terminal

When using a video camera, connect the remote control plug of the camera adaptor to this terminal.

⑳ VIDEO IN terminal

Connect an external video camera or other video source to this terminal.

㉑ VIDEO OUT terminal

Video signals being recorded or played back can be monitored from this terminal.

㉒ AUDIO IN connectors CH-1 (L), CH-2 (R)

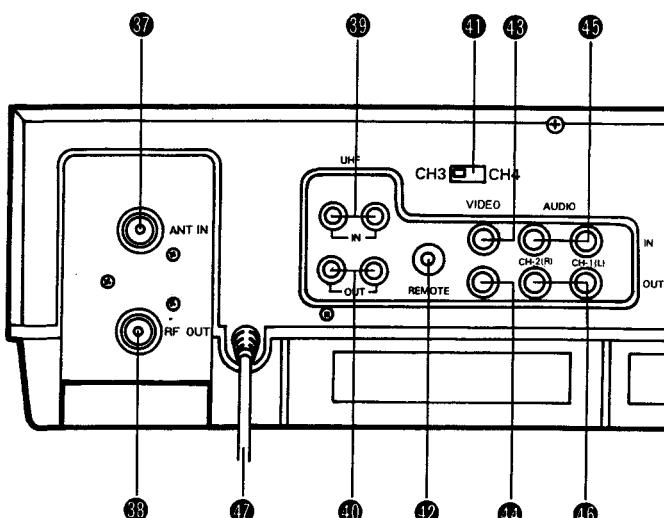
Connect an audio tape recorder or other audio sources for recording sound.

㉓ AUDIO OUT connectors, CH-1 (L), CH-2 (R)

Audio signals being recorded or played back are available from these terminals.

㉔ AC power cord

To be connected to AC 120 V~, 60 Hz outlets only.



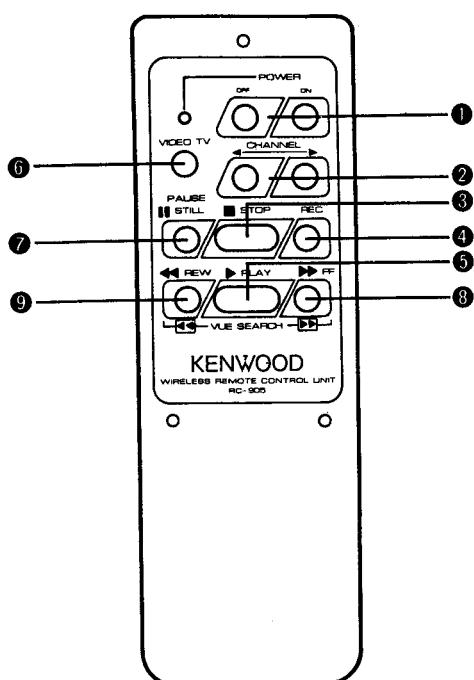
㉕ ANT IN terminal

Connect the 75-ohm VHF antenna coaxial cable to this terminal.

㉖ RF OUT terminal

Connect this terminal to the VHF antenna terminal of a TV receiver with the VHF antenna cable provided.

The infrared remote control unit



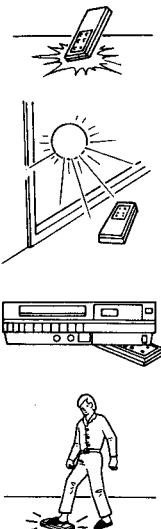
Infrared remote control unit RC-905

The infrared remote control unit lets you control 14 function from your viewing position. All control buttons have the same function as the corresponding buttons on the recorder.

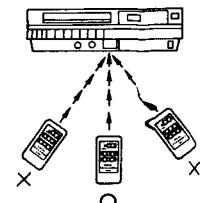
- ① Power ON/OFF buttons
To switch power on or off for the recorder.
- ② CHANNEL select buttons
- ③ STOP button
- ④ Record button (REC)
- ⑤ PLAY button
- ⑥ VIDEO/TV mode select button
- ⑦ PAUSE/STILL button
- ⑧ FF/VUE SEARCH button
- ⑨ REW/VUE SEARCH button

Notes

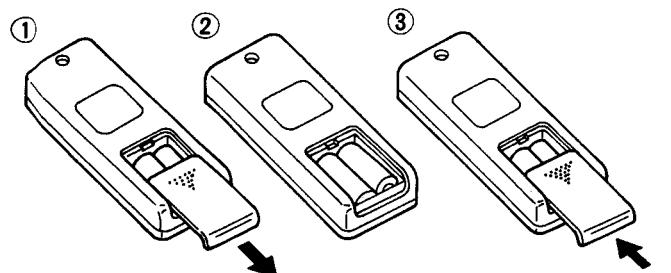
- Avoid violent shocks, especially take care not to drop the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.
- Do not place heavy objects on the unit, especially be careful not to step on it.



- If you wish to operate the recorder locally after you have switched the power off via the remote control unit, first press the POWER button to OFF and then press it to ON again.
- As long as the POWER button is in the ON position switching the recorder on or off can be performed via the remote control unit.
- Point the remote control unit straight at the sensor window of recorder. Pointing at an angle will reduce the range of operation.
- Do not operate the remote control unit with other remote controllers same time (for TV, etc.). The recorder will be made miss operations.



Loading the batteries



- ① Remove the battery compartment lid.
- ② Place two batteries (type : AA) in the battery compartment.
- ③ Replace the lid.

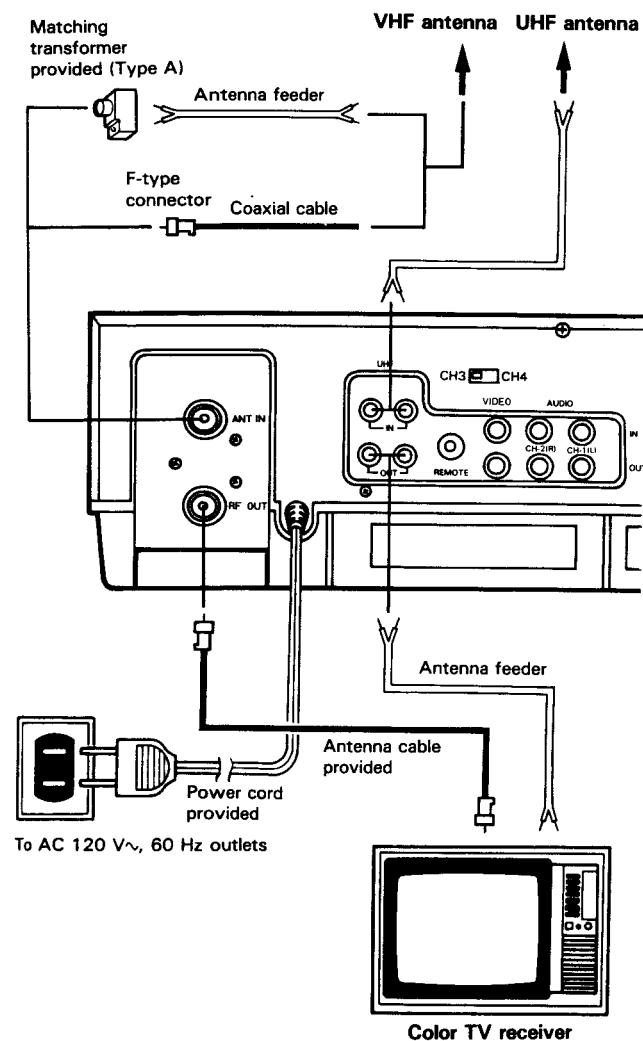
Caution with battery replacement

1. Load the new batteries with their polarities (+ and -) aligned properly.
2. Do not heat, disassemble or shortcircuit the batteries.
3. If you do not intend to use the remote controller for a long period of time, remove the batteries and store them.
4. Remove spent batteries immediately and dispose of them.
5. Do not mix old and new batteries.

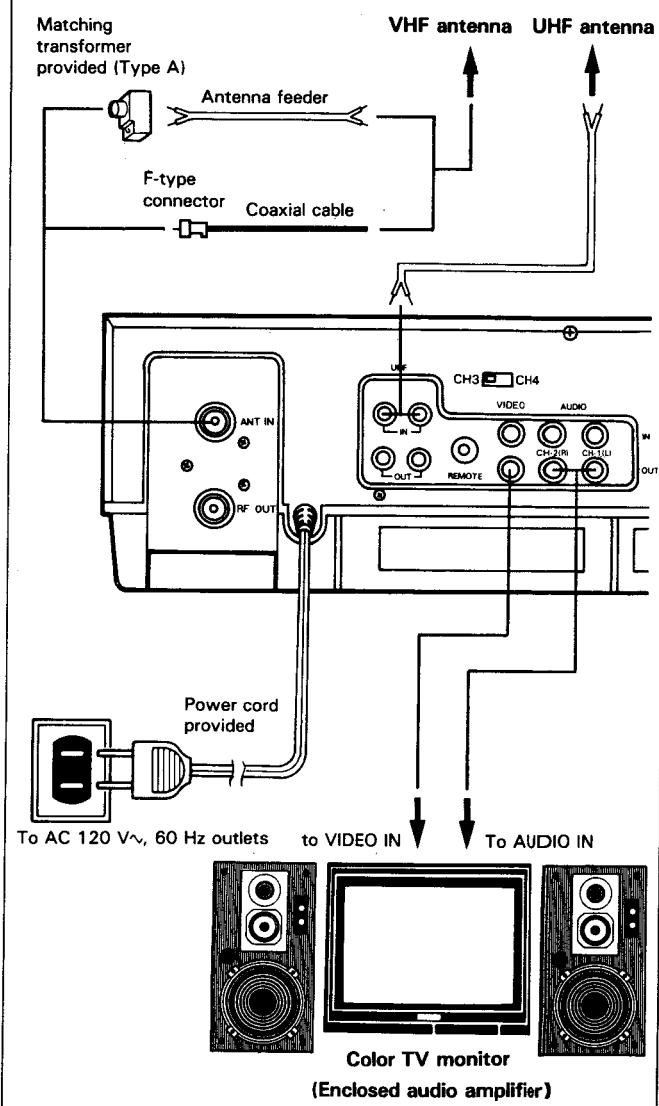
(Also never mix alkaline batteries with manganese batteries.)

How to connect the KV-905 to your TV receiver

System Example 1



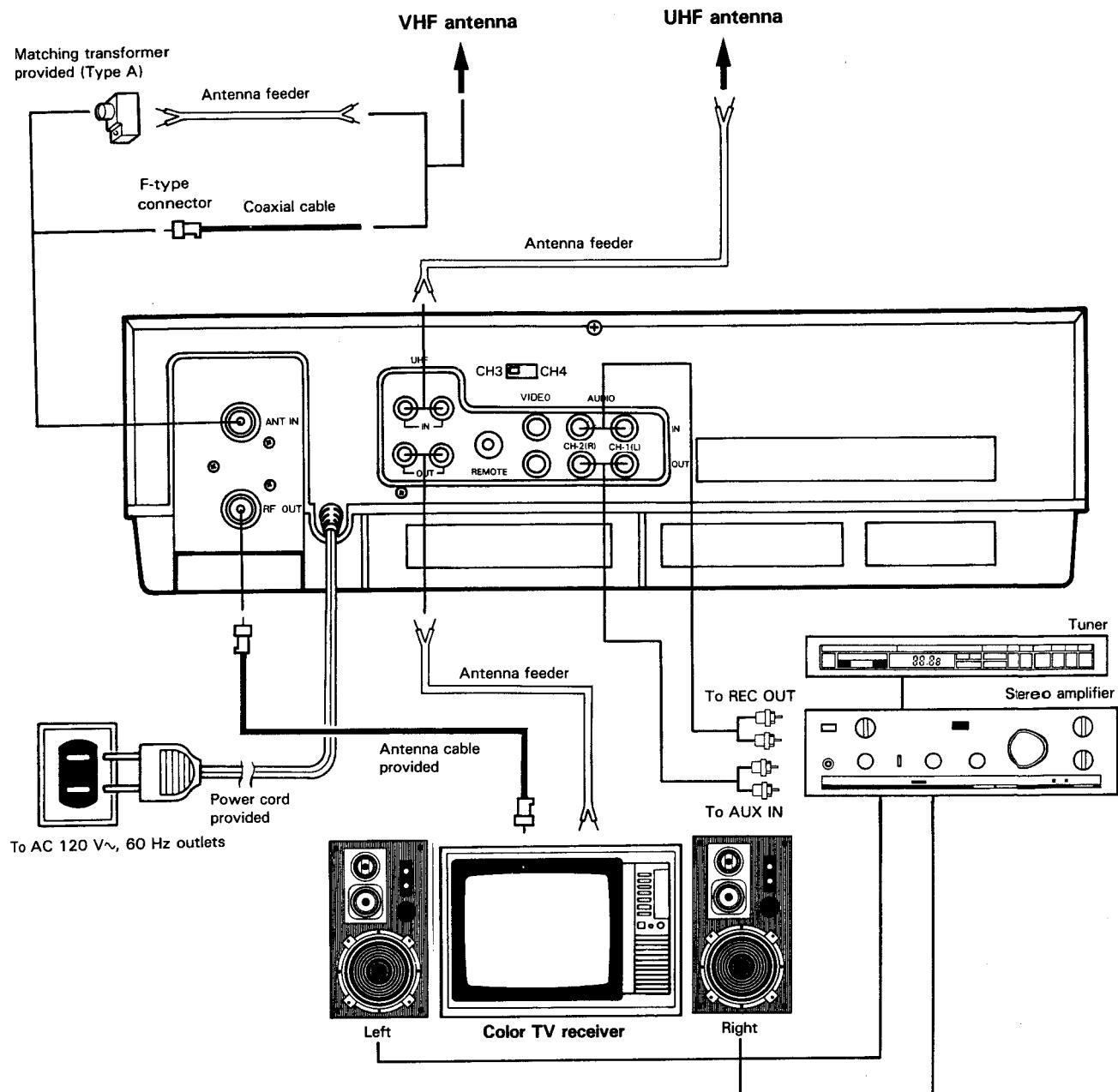
System Example 2



Procedure

1. Remove the VHF and UHF antenna cables from the TV receiver and reconnect to the recorder as illustrated. The recorder is then ready to record off-the-air programs.
2. Connect the recorder to the TV receiver using the VHF antenna cable (provided) and a UHF antenna cable as illustrated. The TV receiver is then ready to receive TV broadcast programs as well as play video cassettes.

How to connect the KV-905 to your TV receiver and simul recording system



Procedure

1. Remove the VHF and UHF antenna cables from the TV receiver and reconnect to the recorder as illustrated.
2. Connect the recorder to the TV receiver using the VHF antenna cable (provided) and a UHF antenna cable as illustrated.
3. Connect the AUDIO IN CH-1(L) and CH-2(R) connectors of the recorder to the REC output terminals of the amplifier, and the AUDIO OUT CH-1(L) and CH-2(R) connectors of the recorder to the AUX IN terminals of the amplifier.

With this setup, you can enjoy prerecorded stereo video tapes in stereo while viewing them on a regular TV receiver, and also be able to record FM simulcast television programs. (See page 13.)

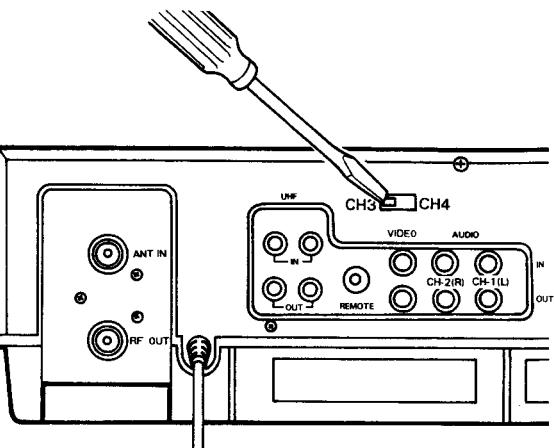
Video channel setting

The built-in RF converter permits playback of video and audio recordings through a TV receiver. The signals from the RF converter are viewed through a vacant channel not used for broadcasting in your viewing area.

The converter channel of all units is set to 3 prior to shipment from the factory. Reset the channel to 4 in areas where channel 3 is used for broadcasting.

For this purpose, with UNIT UNPLUGGED, carefully insert a small flat-head screwdriver into the hole provided on the rear panel of the unit and slide the channel select switch to HIGH CH (CH 4).

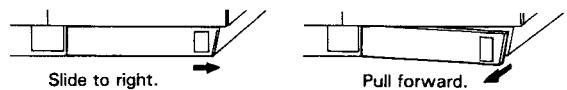
This is YOUR video channel. To view video cassettes, always set the TV channel selector to either channel 3 or 4.



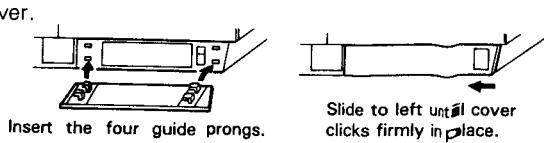
Built-in tuner pre-tuning

Pre-tuning procedure

1. Switch on TV receiver and the recorder power button.
2. Set the TV receiver channel to the output channel of the recorder's RF converter (VIDEO CHANNEL 3 or 4).
3. The INPUT SELECT switch on the front panel is in the TV position.
4. Remove the pre-tuning control compartment cover.



5. Press the CH SET button. The "SET" indicator will flash on the fluorescent display.
6. Press the CHANNEL UP/DOWN buttons to specify the channel you wish to preset.
7. Press one of the three AUTO buttons.
 - "Vl" button ...To tune to VHF channels 2 - 6.
 - "Vh" button ...To tuner to VHF channels A - I, 7 - 13, J - W,
 - "U" buttonTo tuner to UHF channels 14 - 83,
 • Pressing AUTO button initiates automatic scanning.
 • The SET and "Vl", "Vh" or "U" indicators will blink as the auto scanning process proceeds.
 • When any broadcast signal is detected, sweeping will automatically stop and the band indicator will remain lit.
8. Press the STORE button.
 - The SET indicator stops blinking.
 - This permits the tuned-in station to be memorised so that you can call up the same station at any time by simply pressing the CHANNEL UP/DOWN buttons.
 - Proceed to next step after making sure that the SET indicator changes from blinking to lighting.
 - The channel number can be set to correspond to actual TV station channels using the CH NO. SET button and the "10" and "1" buttons, (See next page)
9. After completing pre-tuning for all channels, press CH SET to cancel the pre-tuning mode.
10. After completing pre-tuning for all channels, replace the cover.



Important information on pre-tuning

Additional information on the tuning procedure

- If no command is given for about 60 seconds after the CH SET button has been pressed, the channel display will return to the original with the CH indicator illuminated.
- When specifying the channel you wish to preset, the CHANNEL button can be pressed either repeatedly for changing the number in a single increment or continuously held for rapid automatic changing.
- When the band indicator (V_L, V_H or U) stops blinking in step 7, check to see if the received broadcast is your desired one or not.
- After step 8, change the channel number by pressing the CHANNEL button and repeat steps 7 and 8 to preset all necessary channels.
- If the picture is not clear after following all procedures above, perform fine tuning on your television.
- Distorted pictures or sound will be recorded if fine tuning has not been properly performed. Exercise care with this adjustment since the recorded picture and sound cannot be adjusted later.

Manual tuning

- With automatic tuning being performed with the three AUTO buttons, only those stations which have a signal strength exceeding a certain level can be captured.
- To tune in weaker signals, employ manual tuning.
- For manual tuning, first select the band with one of the AUTO buttons and then use either one of the MANUAL buttons. Automatic scanning will stop and scanning will be performed only while one of the MANUAL buttons is being pressed.
- When you capture a desired station, press the STORE button in the same manner as for automatic tuning and the tuned-in station will be memorized.

Channel numbers

- The built-in tuner has been preset to receive VHF channels 2 through 13 on the first 12 channels and the remaining 4 channels have not been preset to any station.
- When the CHANNEL button (UP or DOWN) is pressed, initially the channel display will show successively 2 through 13, then U1 through U4. These are referred to as real channel numbers.
- When the CH SET button is pressed to engage the Channel Preset mode, the channel display will show 1 through 16 as the CHANNEL button (UP or DOWN) is pressed. These are referred to as channel position numbers.
- After pre-tuning, if you wish to change the real channel number to correspond to the actual pre-tuned station, press the CH NO. SET button after calling up the corresponding channel position number on the display and enter the desired channel number using the READ OUT buttons ("10" and "1"). The "1" button changes the figure of the units digit: numerals 0 to 9 are available. The "10" button changes the figure of the tens digit: blank, numerals 1 to 9, U and C are available.
- Real channel number changing procedure:
 1. Call up the channel whose real channel number is to be changed by pressing the CHANNEL button (UP or DOWN).
 2. Press the CH SET button to engage the Channel Preset mode. The displayed channel number will change to the channel position number.
 3. Press the CH NO. SET button. The channel display will show the blinking real channel number instead of the channel position number.

4. Compose the desired real channel number with the "10" and "1" buttons. The SET indicator will also blink.
5. Press the STORE button. The SET indicator will stop blinking.
6. Disengage the Channel Preset mode by pressing the CH SET button.

Notes

1. Be sure to select the channel first with the CHANNEL button (UP or DOWN) and then press the CH NO. SET button. The Channel Number Set mode is cancelled each time the CHANNEL button is operated.
2. If you change several real channel numbers successively, press the CH NO. SET button each time you select another channel with the CHANNEL button.

Skipping unused channels

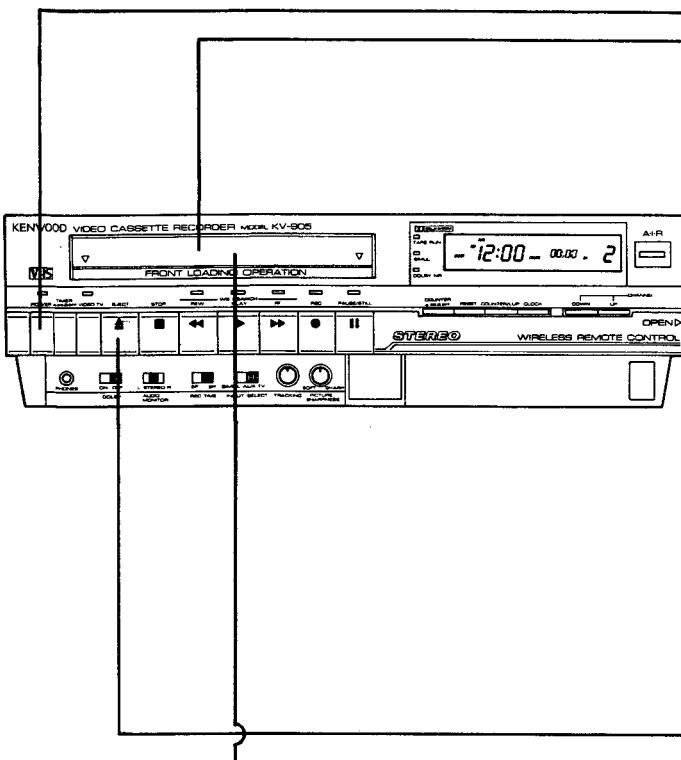
Though 16 channels are available for presetting to desired TV channels, you may not need all 16 channels. In such cases, unused channels can be skipped so that only preset channels will be called up by pressing the CHANNEL buttons. For this purpose, proceed as follows:

- 1) Call up the channel number that you wish to skip by pressing either side of the CHANNEL button.
- 2) Press the CH SET button.
- 3) Press the SKIP button.
 - This completes the procedure for skipping the corresponding channel number.
- 4) Call up another channel number that you wish to skip and repeat the same procedure above.
- 5) Press the CH SET button to disengage this mode.

Notes

1. After this mode is disengaged, those skipped channel numbers will not appear on the channel display any more when the CHANNEL button is pressed.
2. In the Channel Set mode, and channel numbers including skipped ones are successively displayed when the CHANNEL button is pressed.
3. It is possible to restore the skipped channels for presetting to another TV channel whenever necessary. For this purpose, call up the corresponding channel number in the Channel Set mode and perform pre-tuning. Press the STORE button. Then, the new TV station channel is memorized and called up at any time with the CHANNEL button.

Loading and unloading a video cassette



Loading

1. Press the POWER button to ON.
2. Insert a cassette with its labelled side facing you.
 - With a cassette inserted, the red line flap appears and displays the  mark to indicate "cassette inserted".

Note

It might be that after unpacking your new recorder the red line door flap with the "cassette inserted" mark is displayed. This is not due to any defect of the unit. Simply insert a cassette. After the first loading/unloading cycle, the door will function properly to show the blue line flap when no cassette is inside and the red line flap when a cassette is inserted.

Cautions

1. Since the KV-905 employs a motorised cassette loading system, loading and unloading the cassette are only possible when the power is applied to the recorder section. Do not force the cassette into the cassette loading slot while the POWER button is OFF. (POWER indicator is off)
2. Do not attempt to pull out the cassette once automatic loading has started.

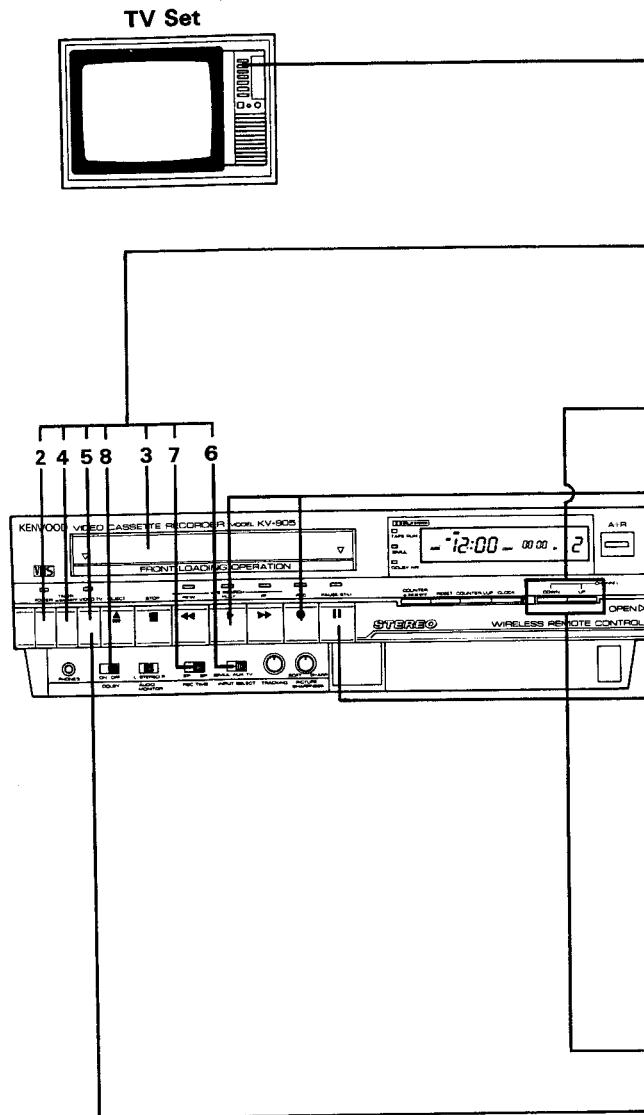
Unloading

1. Press the EJECT button to the cassette will be ejected.
2. Remove the cassette from the loading slot.
 - When no cassette is inserted, the blue line flap appears.

Notes

1. Be sure to insert the cassette firmly into the slot; otherwise, it will be automatically ejected.
2. The automatic loading mechanism will operate only when the cassette is inserted correctly.
3. A cassette inverted cannot be inserted.

Recording a TV program



Recording a TV program while watching it

Preparation

1. Set the TV receiver's channel selector to your video channel (3 or 4).
2. Press the POWER button to ON.
3. Load a cassette.
4. Set the TIMER button to OFF.
5. Set the VIDEO/TV button to VIDEO. (VIDEO indicator is lit)
6. Set the INPUT SELECT switch to TV.
7. Set the REC TIME switch to the mode in which you want to record.
 - LP mode recordings can not be made.
8. Set the DOLBY switch to ON if you wish to make hiss less recordings.
9. Select the channel from which you wish to record.

Recording procedure

1. Press the REC and PLAY buttons simultaneously. Recording will start.
Or, press the REC and PAUSE/STILL buttons simultaneously. Recording Standby mode will start. To restart recording, press the PLAY button.
 - If the REC button cannot be engaged, check to see if the cassette safety tab has been removed.
2. To skip recording part of the program, press the PAUSE/STILL button. The tape will stop while in the Record mode.
To restart recording, press the PLAY button.
3. To stop recording, press the STOP button.

Recording a TV program while watching another

A program not being viewed can be recorded while you enjoy viewing another program. This permits the recorded program to be played back later at your convenience. The important points are as follows:

1. Select the channel you wish to record with the recorder's channel selector.
2. Set the VIDEO/TV button to TV.
3. Select the channel you wish to view with the TV receiver's channel selector.

Notes

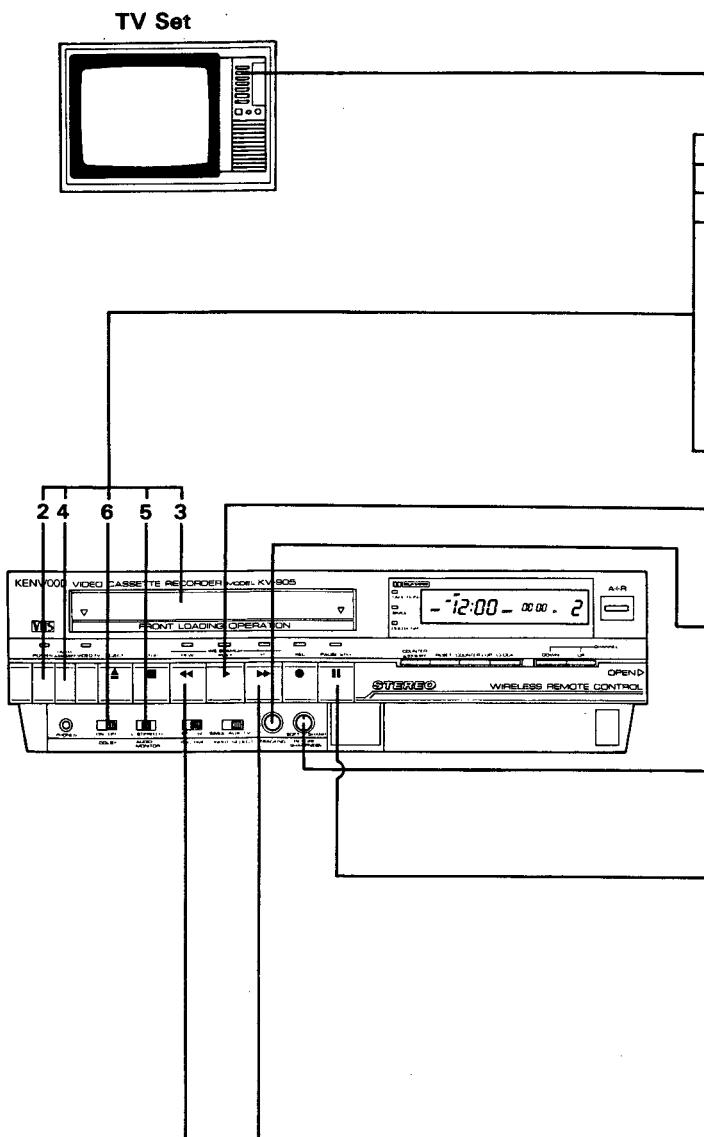
1. Press the COUNTER/LAP button to check how much recording time has elapsed.
2. When the end of the tape is reached during recording, the tape is automatically rewound to the beginning and stops.
3. If there is part of the program you don't want to record, press the PAUSE/STILL button. To cancel the Pause mode, press the PLAY button.
4. When recording is restarted from the pause mode, assemble recording is performed so that the playback picture will not distort at the edit point. A few frames recorded before the pause are erased due to overlap of the new recording. This is not due to any defect of the unit.
5. The Pause mode is released automatically after about 5 minutes in order to prevent tape damage and the Stop mode is engaged.
6. The built-in tuner's automatic channel lock mechanism prevents the selected channel from being altered during recording. Therefore if you wish to change the channel during recording first engage the Pause mode and then select a different channel.

Recording FM simulcast programs

Connect an FM stereo receiver to the rear panel AUDIO IN connectors.

Set the INPUT SELECT switch to SIMUL. The SIMUL indicator will light. Then the video signal will be recorded from the built-in tuner and the audio signal will be recorded from the FM stereo receiver.

Playing back a video cassette



Attention: The following adjustments should be performed at a KENWOOD Service Center.

① Headphone output level select switch

② V-lock adjustment screw

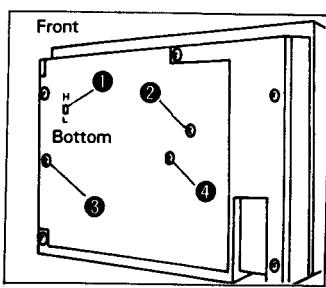
After making the noise bar adjustment, adjust this screw to eliminate any vertical vibration of the picture.

③ SP mode noise bar adjustment screw

When operating in the Still mode while playing back an SP mode recording, noise bars on the screen can be minimized by turning this screw in one direction or the other until the noise bars move to the edge of the screen. With tapes recorded on other machines, readjustment may be required.

④ EP mode noise bar adjustment screw

When operating in the Still mode while playing back an EP mode recording, noise bars on the screen can be minimized by turning this screw in one direction or the other until the noise bars move to the edge of the screen. With tapes recorded on other machines, readjustment may be required.



Normal playback

1. Set the TV receiver's channel selector to your video channel (3 or 4).
2. Press the POWER button to ON.
3. Load a pre-recorded cassette.
4. Set the TIMER button to OFF.
5. Set AUDIO MONITOR as required.
 - To play back stereo recorded tapes, set this switch to STEREO.
 - To play back tapes having independent sound tracks, select the corresponding channel.
 - Monaural tapes can be played back in any position of this switch. However, it is advisable to set this switch to STEREO for better sound quality.
6. Set the DOLBY switch to ON when playing back Dolby-encoded tapes. The DOLBY NR indicator will light.
7. Press the PLAY button to start playback.
 - The SP/EP switch may be in either position. The SP, LP or EP mode recording is automatically detected and played back at a correct speed respectively.
8. Noise bars may appear on the screen if you play back a tape which was recorded using another recorder. In such cases, adjust the TRACKING control. Turn it in either direction to adjust the picture. After playing a particular tape, return the control knob to the center position.
9. Turn this knob clockwise to make the picture sharper. Turn counterclockwise to give the picture a softer tone.
10. Press the STOP button to stop playback.

PAUSE/STILL

When the PAUSE/STILL button is pressed during playback, a still picture will appear. The still picture can be advanced in a frame-by-frame manner each time this button is pressed. Holding this button pressed continuously advances the picture in a frame-by-frame manner.

- When the Still mode continues for longer than 5 minutes, the Stop mode will be entered automatically.

FF/VUE SEARCH, REW/VUE SEARCH

To fast forward or rewind the tape, press this button in the Stop mode.

To VUE search the tape in the reverse or forward direction, hold this button pressed in the Play mode.

The search speed varies depending on the mode of the recording:

- SP/EP mode.....about 7 times normal speed

Since the audio circuit is automatically switched off in this mode, the unintelligible sounds of the speeded-up tape are not reproduced.

Notes

1. The tape-end auto rewind mechanism functions in both the Play and Fast Forward modes.
2. When listening through headphones, if the volume is too loud, reset the headphone level select switch located on the bottom of the unit.

Headphone output level select switch

H: High output.
L: Low output.

Before shipment, this switch has been set to H. If the headphone volume is too loud, reset it to L.

Clock setting

Open the clock setting panel door.

- ① Press the POWER button to ON.
- ② Hold CLOCK SET pressed.
- ③ Press DAY for "day" setting.
- ④ Press HOUR for "hour" setting.
- ⑤ Press MIN (+) to increase "minute" setting.
- ⑥ Press MIN (-) to decrease "minute" setting.
- ⑦ Release CLOCK SET to start time-keeping.

- Release the button at the exact instant of the time signal and the clock will be set accurately to the present time.

Hour digits
Day indicator
Minute digits

CLOCK **SUN** **AM** **12:00** **COUNT** **00 00** **CH** **2**

CLOCK **MON** **AM** **12:00** **COUNT** **00 00** **CH** **2**

CLOCK **MON** **AM** **12:00** **COUNT** **00 00** **CH** **2**

CLOCK **MON** **AM** **12:33** **COUNT** **00 00** **CH** **2**

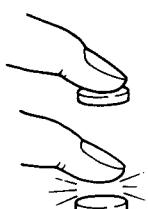
CLOCK **MON** **AM** **12:30** **COUNT** **00 00** **CH** **2**

CLOCK **MON** **AM** **12:30** **COUNT** **00 00** **CH** **2**

Notes

• Setting the days, hours and minutes digits

The Day, Hour, Min (-) and Min (+) buttons can be pressed in two ways.

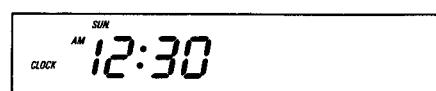


When you hold a button down, the digits will advance continuously until the button is released.

When you press and immediately release a button, the digits will advance by one.

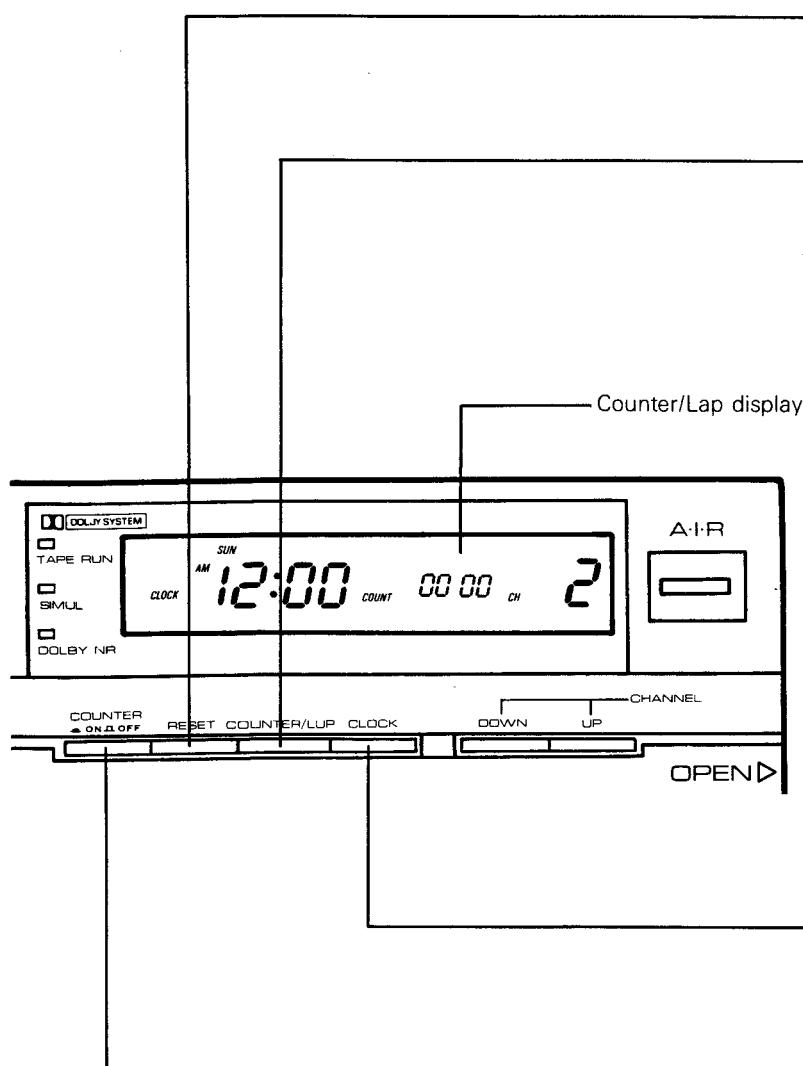
• Power failure indicator

The entire clock display may start to flicker fast. This is not a malfunctioning of the clock, but it indicates that there has been a power failure in excess of one hour. Re-adjusting the time restores the normal condition of the clock display.



- Any sequence of setting the day, hour and minute is possible.

Counter memory and counter/lap functions



RESET button

Press to reset the counter to "0000" for indexing the tape, or to reset the LAP time to "0:00" for checking the elapsed recording time.

COUNTER/LAP button

When the POWER button is pressed, the tape counter appears on the display with the COUNT indicator illuminated.

To change this counter mode to the Lap Time mode to check the elapsed recording time, press the COUNTER/LAP button.

The LAP indicator will illuminate and the display will change to the lap time counter.

To change the Lap Time Counter mode back to the Tape Counter mode, press the same COUNTER/LAP button.

CLOCK button

Press this button to change the display from the Program set mode to the Clock mode.

Counter Memory function

1. Press the RESET button at a point which you may wish to locate later.
 - The tape counter will indicate "0000".
2. Press the COUNTER MEMORY button to ON (■).
3. Press the REW (or FF) button when you need to return to the designated point.

The tape will rewind (or fast forward) and stop at about the "0000" counter reading automatically.

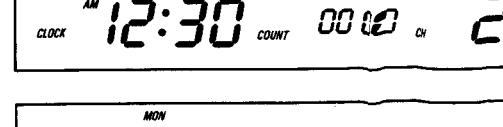
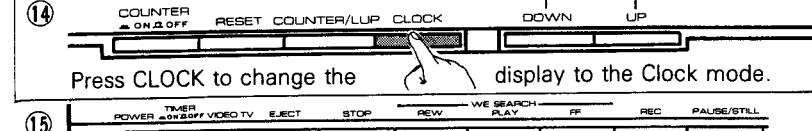
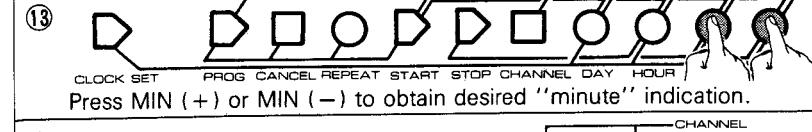
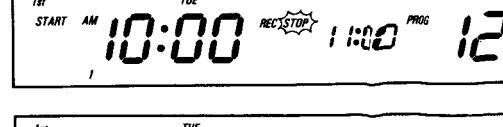
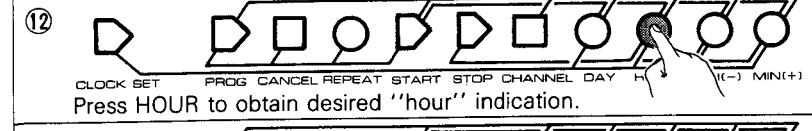
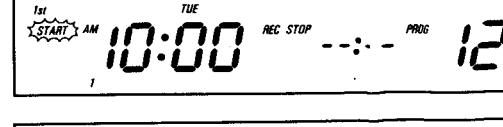
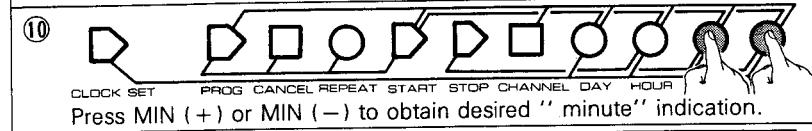
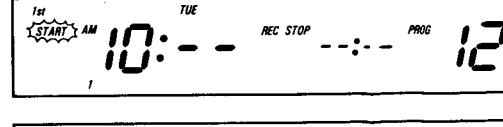
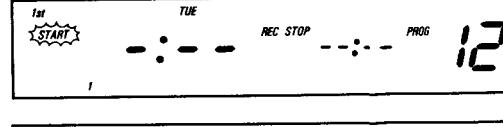
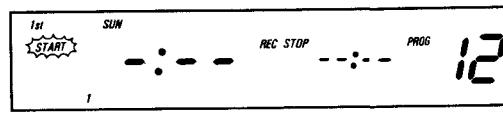
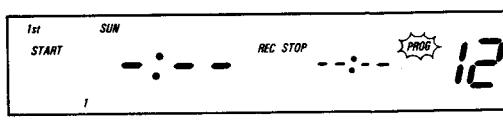
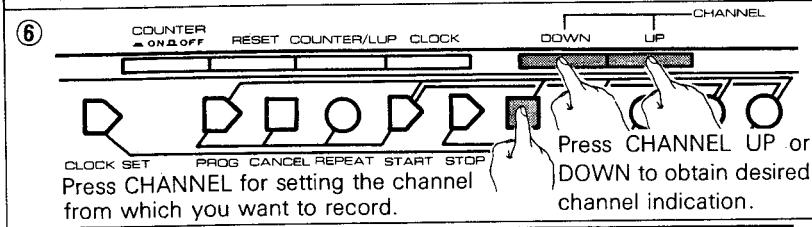
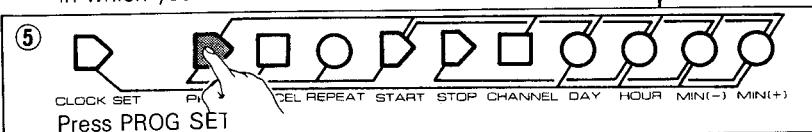
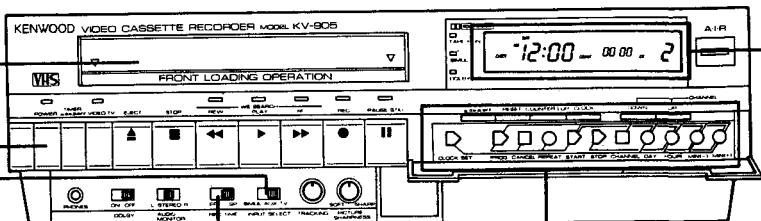
Notes

1. The LAP time is counted up to 99 hours, 59 minutes.
2. Unless the RESET button is pressed in the LAP mode, the count is maintained even after the POWER button is pressed to OFF.
3. When the Lap mode is engaged during playback, counting does not take place, although the current count is displayed.

Automatic timer recording

The built-in 14-day/8-event programmable timer permits recording of preset channels on preset days, at preset times, for preset lengths while you are away.

- ① Press the POWER button to ON.
- ② Load a cassette.
- ③ Set the INPUT SELECT switch to TV.
- ④ Set the REC TIME switch to the mode in which you want to record.



Important information on timer recording

Setting the START and STOP times

- It is not possible to set the START and STOP times unless the clock time has previously been set.
- Enter the data while the START or STOP indicator is flashing (about 60 seconds).
- Holding the DAY, HOUR, MIN (-) and MIN (+) buttons pressed for more than 1 second continuously advances the indication automatically. Pressing the buttons once advances the indication in single increments only.
- The sequence of day indications: from "1st SUN" (first Sunday) to "1st SAT" (first Saturday), then "2nd SUN" to "2nd SAT", and then an all-days indication.
- After setting the START time, when the STOP button is pressed, initial STOP time indication will be same as the start time.
- Unless the START time has been properly set, STOP time setting is not possible.
- The STOP time can be set within 24 hours from the START time. If the hour setting for the STOP time runs into the following day, there is no need to set the day (the DAY button does not function when the STOP time mode is engaged). Recording will stop at the preset time on the following day, even though the day indication is not displayed.

Setting the channel

- Enter the data while the PROG indicator is flashing (about 60 seconds).
- Setting the channel is independent from the START or STOP button. Therefore, it is possible to select the channel either before or after setting the START and STOP times.
- The remote control unit's CHANNEL buttons are also effective.
- The currently tuned channel lockes in the Program Set mode and, when the display returns to the Clock mode, the locked channel is displayed.
- Even when you use the timer recording function to record external sources with the INPUT SELECT switch to AUX, enter a channel number, otherwise the timer will not function.

Repeating the programmed data

- When you want to record a daily serial for one week, just obtain the all-days indication when setting the day.
- If you wish to hold the preset data in memory in order for recordings to be made repeatedly according to the same data (for example, at the same time on the same day every week), press the REPEAT button. The REPEAT indicator will light.
- The combination of the all-days indication and REPEAT indication means that recording will be repeated every day indefinitely.

Cancelling the preset data

- The preset programs can be cancelled by pressing the CANCEL button. For this purpose, first engage the Program Set mode for the number you wish to cancel and then press the CANCEL button.
- The PROG. NO. and CANCEL buttons cannot be pressed simultaneously.

Checking the programmed data

- Checking and re-programming can be performed anytime as long as the OPERATE button is in the ON position (even when the TIMER button has already been engaged in the ON position).

- While recording is actually taking place according to one preset program, all other preset programs can be checked or re-programmed
- While recording is actually taking place, the switch-off time can be canged. If the START button is pressed, the switch-on time is displayed, but the START indicator does not flash, indicating that changing of the switch-on time is not possible.

TIMER indicator

- When the TIMER button is pressed to ON with a cassette loaded and the timer correctly programmed, the TIMER indicator on the display will light with the corresponding program number also lighting and the power is turned off.
- When you have preset several programs at a time, confirm that all the preset program numbers light together with the TIMER indicator when the TIMER button is pressed. The program whose number does not light has not been correctly preset (for instance, the preset switch-on and switch-off times are the same, or no switch-off time has been entered). Recheck the programmed data.
- If all programs have been wrongly preset, the TIMER indicator will flash for about 10 seconds when the TIMER button is pressed, and remain lit.
- If the TIMER button is pressed when a cassette is not loaded, the TIMER indicator will continue blinking.
- If a cassette with its safety tab removed has been loaded, it will be ejected automatically when the TIMER button is pressed. The TIMER indicator will continue blinking.

Timer operation

- Tape loading starts 10 seconds before the preset switch-on time and the recording start signal is triggered 2 seconds before the preset time so that recording starts exactly at the preset time.
- During timer recording, the number of the program that is presently operating will be flashing.
- After timer recording, the power is switched off and the auto rewind mechanism does not function. If the end of the tape is reached during timer recording, the cassette is automatically ejected and then the power is switched off.
- After a power failure in excess of one hour has occurred (refer to page 15, "Power failure indicator"), all programmed data are cancelled.

For a better understanding of the Programmable timer

Two-week timer

"Two-week" presetting capacity means that you can "reserve" recording on any one of 14 days in advance including the day of setting.

If the current day of setting is Sunday:

1st week						
SUN	MON	TUE	WED	THU	FRI	SAT
2nd week						
SUN	MON	TUE	WED	THU	FRI	SAT
SUN						

- In this situation, there may be no possibility of confusion in setting the day.
- Namely, the "1st MON" is Monday of the current week and the "2nd MON" is Monday of the next week. The same applies to other week days.
- Regarding Sunday, there are two different cases; one is that you are going to set the timer to a time before the current time of setting and the other is that the preset time is a time after the current time of setting.
- In the former case, the "1st SUN" is the next Sunday and the "2nd SUN" is the Sunday after next.
- In the latter case, the "1st SUN" is the current Sunday and the "2nd SUN" is Sunday of the next week.

If the current day of setting is Wednesday for example:

1st week						
SUN	MON	TUE	WED	THU	FRI	SAT
2nd week						
SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED			

- Remember that the "1st MON", "1st TUE" and so on.... mean the first coming Monday, the first coming Tuesday, and so on, and not Monday of the current week.
- Similarly, the "2nd MON", "2nd TUE" and so on.... are the second coming Monday, the second coming Tuesday, and so on, and not Monday or Tuesday of the next week.
- If you are on Wednesday for example, and wish to record something on Tuesday of the next week, the preset data should be "1st TUE". To record on Thursday of the next week, set "2nd THU".
- Regarding Wednesday, the same as mentioned about Sunday on the left applies.

8-program timer

"8-program" presetting capacity means that you can have 8 separate program entries which contain different programming data. Because of this capacity, you can even "reserve" 8 different TV programs, either on the same day or on different days.

Each program (No. 1 through No. 8) entry contains information on "TV program channel number", "day", "switch-on time", "recording length" and "either single or repeat".

Example of the contents of one program entry:

Program number	TV program channel number	Day	Switch-on time	Recording length	Repeat
2	12	1st WED	2 : 30	30 min.	-

Variety of setting possibilities

- You can set for some day of the 1st week or the 2nd week.
- You can set for one day of every week by first setting that day of the 1st week and pressing the REPEAT button.

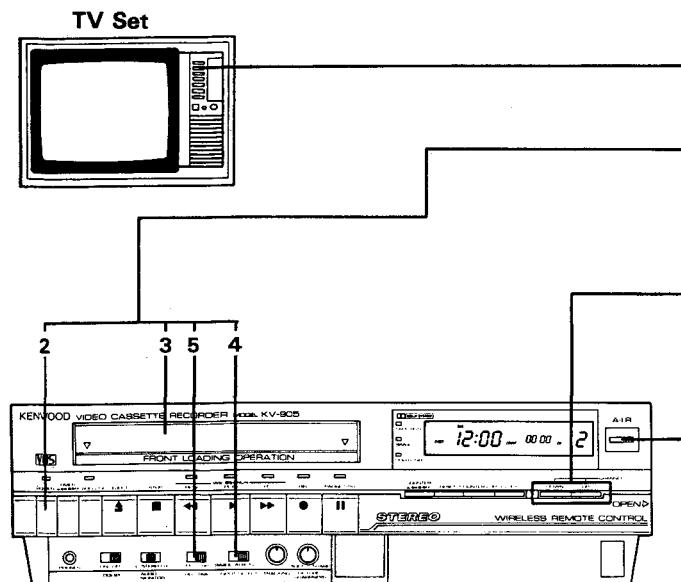
- You can set for one day of every week starting from the second week by first setting that day of the 2nd week and pressing the REPEAT button.
- You can set for all days. For this setting, obtain the indication "SUN MON TUE WED THU FRI SAT", and recordings will be repeated at the same time everyday for one week.
- You can set for all days week after week. For this setting, first obtain the indication as mentioned above and then press the REPEAT button. And recordings will be made everyday week after week.
- All the above applies for all 8 program entries.

Program priority

- If you have preset two programs for the same day and the same switch-on time, the setting corresponding to the smaller program number has priority.
- If two programs have preset times which overlap the earlier-started program will be interrupted by the latter one.

The action of instant recording (A-I-R)

Besides starting and stopping a recording as usual, the KV-905 offers a more convenient possibility: starting by the push of a single button, and recording will stop automatically after a certain period of time. Use this facility for starting a recording before you go to bed or leave home.



Preparation

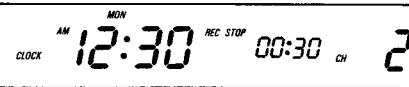
1. Set the TV receiver's channel selector to your video channel (3 or 4).
2. Press the POWER button to ON.
3. Load a cassette.
4. Set the INPUT SELECT switch to TV.
5. Set the REC TIME switch to the mode in which you want to record.
 - LP mode recordings can not be made.
6. Press the recorder's channel selector corresponding to the channel you wish to record.
7. Press the A-I-R button to ON.
 - The following indication will appear on the display, to show that the recorder is ready to start recording.
 - The REC STOP indicator on the display will flash.



Caution:

Do not press the A-I-R button while a cassette is in the process of being loaded.

8. Press the A-I-R button once again.
 - Recording will begin immediately and the following indication will appear on the display, showing that recording will automatically stop and power will switch off after 30 minutes.
 - The REC STOP indicator remains lit.



9. Each time the A-I-R button is pressed, recording time increases by 30 minutes.
 - For a more precise time setting, use the HOUR, MIN (+) and MIN (-) buttons to set to the exact time required.

Notes

1. If the A-I-R button is not pressed a second time within about 10 seconds after it has been pressed once, the instant record mode will be cancelled and the display will change back to the Clock mode.
2. Timer setting in the Instant Record mode is possible up to a maximum of 4 hours when the A-I-R button only is used. If the MIN (+) button is used after 4:00, this setting can be increased up to 4 hours, 59 minutes.
3. While recording is in progress, the displayed time counts down; when 0:00 is reached, the Record mode is released after 10 seconds and the power is switched off.
4. If you want to stop recording after having started recording in the A-I-R mode, press the STOP button, or press the POWER button to OFF, or obtain the timer indication of "0:00" using either the A-I-R or timer setting buttons.
5. The action of instant recording function can also be used as a sleep timer. If you press the A-I-R button during normal recording, the REC STOP indicator will light on the display and the indication "0:30" will be obtained, showing that recording will stop automatically after 30

- minutes. The time span can be adjusted in the same way as for instant recording up to 4 hours, 59 minutes.
6. Instant recording has priority over all other modes; you can start recording from any mode using the A-I-R button, even from rewind or fast forward.
7. If the A-I-R button is pressed with a non-recordable cassette loaded (one with its safety tab removed), the cassette will be automatically ejected.
8. If you want to perform instant recording after you have set the timer and pressed the TIMER button to ON, press the A-I-R button as usual. Power will be turned on and instant recording will start. After instant recording has been performed, the Timer mode is automatically reentered and power is turned off. The preset time for instant recording has priority over the programmed preset times. Before pressing the A-I-R button, make sure that the instant recording time will not eventually overlap the programmed preset times.
9. If the programmed switch-on time for a timer recording should come after the switch-off time of the instant recording, this timer recording can still be made automatically.

Connection to cable or pay television

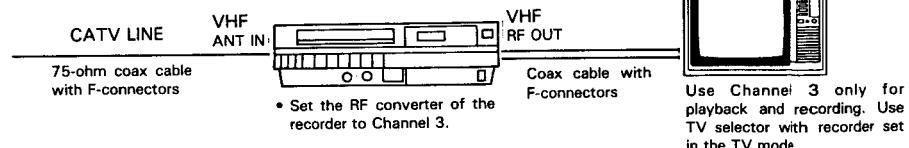
There are several different systems of cable television at present. Therefore, there may be various situations where you use your recorder in combination with CATV services. The recorder is equipped with a 105-channel cable-ready tuner to

meet the increasing popularity of cable television. When you connect the recorder to your cable TV system, the following should be taken into consideration.

Situation I

Cable TV with only 12 channels

In this situation, as illustrated, a simple hookup is all that is needed to have access to and programmability of all available cable channels.



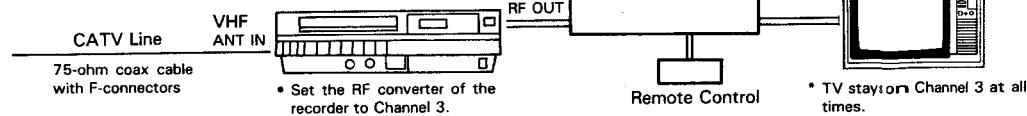
Situation II

Cable TV with more than 12 channels (up to 35 channels) + Pay channels with filter-type scrambling or no scrambling at all

In this situation you can pretune up to 16 channels on the recorder for recording any channel while viewing any other channel offered by the cable TV system. However, with this setup you can only record the channels to which you choose to pretune the recorder.

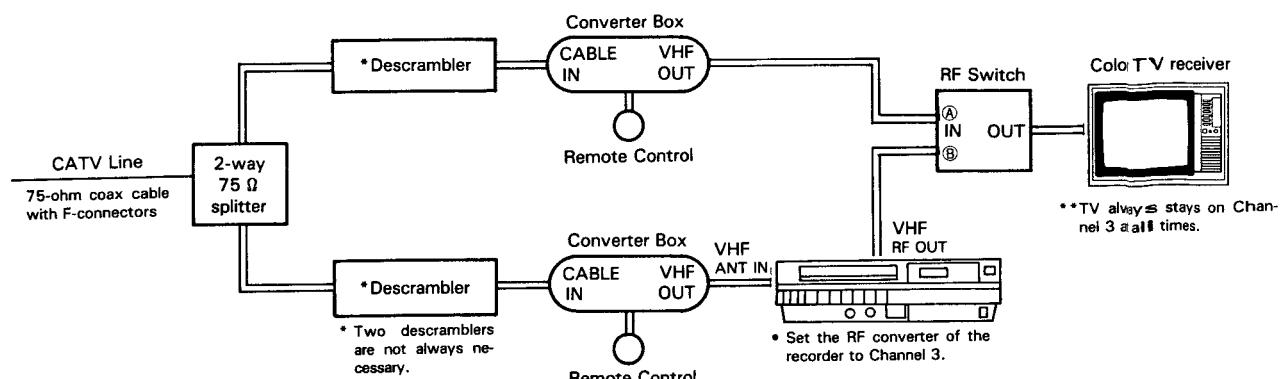
Moreover, with this setup:

- (1) When the VIDEO/TV switch on the recorder is set to the TV mode, use the cable converter box to select any channel you desire to watch. (This setting bypasses the recorder completely.)



Situation III

Cable TV + Pay channels with scrambling of video but not audio



In Situation III you can record a Pay Channel program while watching another channel. Follow the steps below.

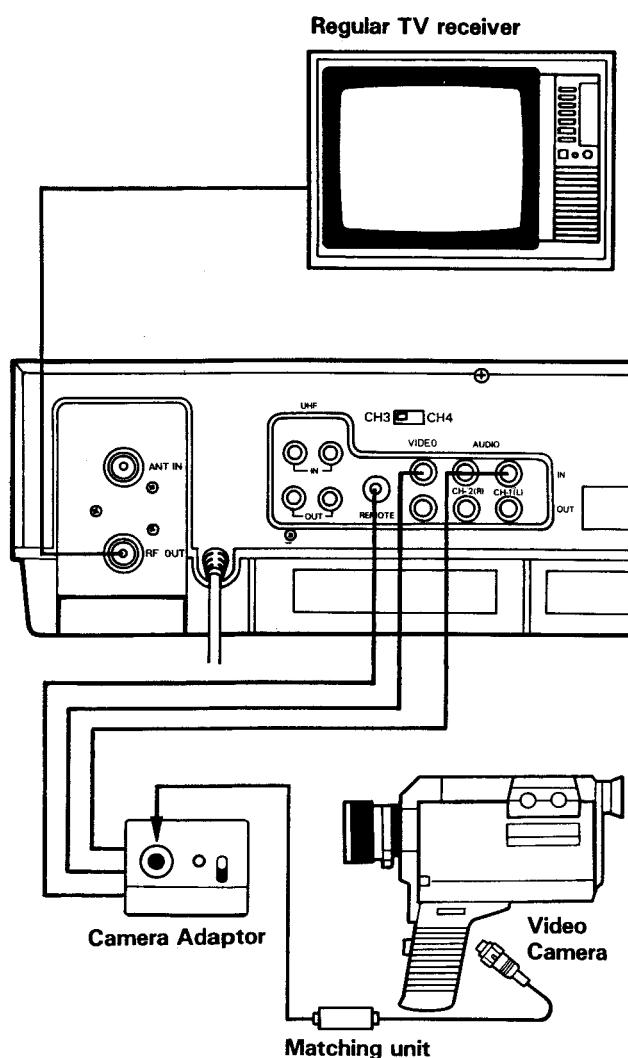
1. Always keep the TV receiver set to Channel 3.
2. Always keep the recorder set to Channel 3.
3. To record one program while viewing another, set the RF switch to the appropriate ("A" or "B") position.
4. The above hookup will work for CATV systems having only the picture scrambled. If the audio for a pay service also goes through the descrambler, such as over-air pay services, it cannot be recorded.

5. For CATV systems with filter-type scrambling, please see Situation II.
6. Please contact your dealer or KENWOOD for any questions concerning hookups or cable TV operation.

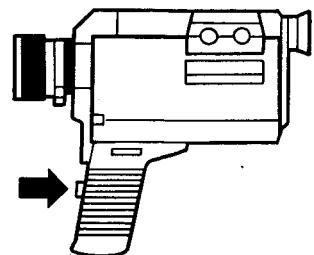
CAUTION

Though the recorder has a 105-channel capability, its cable TV adaptability is limited.

Recording with a video camera



1. Connect a video camera to the recorder as illustrated.
2. Turn ON the recorder, TV receiver and camera adapter. Load a cassette for recording.
3. Set the TV receiver's channel to your video channel (3 or 4).
4. Set the INPUT SELECT switch on AUX.
5. Press the REC and PLAY buttons simultaneously. This will engage the Recording Standby mode.
6. Operate the camera's start/stop switch. Now recording will start.



Notes

1. If feedback noise (whistling or howling) is audible from the TV receiver, either reduce the volume or move the microphone (either external microphone or built-in camera microphone) farther away from the TV receiver.
2. When a video camera is connected to the recorder via an adapter with its remote control cable plugged into the REMOTE pause terminal (as illustrated), the PAUSE mode is engaged. Under such conditions, as long as the camera is connected to the recorder, recording with the recorder's controls is impossible, even for regular TV programs.

Possibilities of audio recording depending on the type of the camera and the connection of microphones

Type of recording Audio source	Monaural recording	Stereo recording (2-channel recording)
Cameras built-in mike	* Recorded on the main channel (L).	—
Stereo signal from 2-channel camera**	—	Left channel signal on main channel and right channel signal on sub channel.

* Depends on the type of camera used. Refer to the instruction manual for the camera.

** For more details about stereo recording with a camera having two audio channels, refer to the instruction manual for the camera.

Head cleaning

- Dirt may accumulate on the video heads after long periods of use and cause picture playback to become blurred or interrupted, even when TV program reception is clear. In such cases the heads should be cleaned as soon as possible.

For head cleaning, requiring highly technical care is necessary, your nearest Kenwood video service Dealer will consult you.

In case of difficulty

If your unit should not perform as expected, consult the table below to see if the problem can be corrected before seeking help from your Kenwood dealer or service representative.

Symptoms	Check points
Power is not applied to the recorder.	<ul style="list-style-type: none">Is the power cord disconnected? Connect it.
Clock is functioning properly, but the set is not powered with the recorder's POWER button ON.	<ul style="list-style-type: none">Have you switched the power off last via the infrared remote control unit? If so, press the recorder's POWER button OFF once and then press it to ON again. Or simply press the remote control unit's ON button.
A "snowy" picture appears on the TV screen when viewing one program while recording another program.	<ul style="list-style-type: none">Is the VIDEO indicator lit? Set the VIDEO/TV switch to TV. The VIDEO indicator light will go off.
Playback picture does not appear on the screen while the tape is running.	<ul style="list-style-type: none">Is the TV receiver's channel selector set to an occupied channel? Set to the RF converter channel (3 or 4).
The tape does not run in the Record mode.	<ul style="list-style-type: none">Is the PAUSE/STILL button pressed? Press PLAY button to release.
REC button cannot be engaged.	<ul style="list-style-type: none">Is the cassette improperly loaded? Load it properly.Is the safety tab broken or missing? Cover the tab hole.
Tape stops in the Rewind or Fast Forward.	<ul style="list-style-type: none">Is the COUNTER MEMORY button set to ON? Set to OFF.
Tape can not rewind.	<ul style="list-style-type: none">Is the tape already rewound to the beginning or wound forward to the end?
TV broadcasts cannot be recorded.	<ul style="list-style-type: none">Is the INPUT SELECT switch set to AUX? Set to TV.
Channel cannot be changed.	<ul style="list-style-type: none">Is recording in progress? During recording, you cannot change the channel.
Noisy playback picture.	<ul style="list-style-type: none">Adjust with the TRACKING control. Return the control to its center position after playing back the particular tape requiring this adjustment.
Pressing PAUSE/STILL during still playback brings a still picture (in a frame-by-frame manner) with noise bars.	<ul style="list-style-type: none">Noise bars can be eliminated by pressing the PAUSE/STILL button a few more times.
Noise such as whistling or howling is heard from TV while camera recording.	<ul style="list-style-type: none">Move camera away from TV or reduce TV sound volume.
Some channels are skipped over when selecting a channel.	<ul style="list-style-type: none">Those channels are preset to be skipped over. If you need them, re-perform channel presetting.

Specifications

Format	VHS standard
Recording system	Rotary, slant azimuth two-head helical scan system with two pairs of video heads, one pair exclusively for the SP mode and one pair for the EP mode.
Video signal system	NTSC-type color signal
Tape width	12.65 mm (1/2 inch)
Tape speed (SP)	33.35 mm/s (1-5/16 ips) (1.31 ips)
(LP)	16.67 mm/s (21/32 ips) (0.65 ips)
(EP)	11.12 mm/s (7/16 ips) (0.43 ips)
Maximum recording time (SP)	160 min. with T-160 videocassette
(EP)	480 min. with T-160 videocassette
Temperature	
Operating	5°C to 40°C (32°F to 104°F)
Storage	-20°C to 60°C (-4°F to 140°F)
Antenna (VHF)	75 ohms, unbalanced
(UHF)	300 ohms, balanced
Channel coverage	
(VHF)	Channels VL 2-6 VH A-I 7-13 J-W
(UHF)	Channels 14-83
VHF output signal	Channel 3 or 4 (switchable; preset to channel 3 when shipped) 75 ohms, unbalanced
Power requirement	120 V AC~, 60 Hz
Power consumption	35 watts
Video	
Input	0.5 to 2.0 Vp-p, 75 ohms unbalanced
Output	1.0 Vp-p, 75 ohms unbalanced
Signal-to-noise ratio	More than 45 dB (Rohde & Schwarz noise meter) with PICTURE SHARPNESS control at center position.
Horizontal resolution	240 lines with PICTURE SHARPNESS control at center position.

Audio	
No. of audio tracks	2 channels
Input	Line: -8 dBs 50 k-ohms unbalanced
Output level	-6 dBs, high impedance load
Output impedance	Less than 1 k-ohms, unbalanced
Signal-to-noise ratio	More than 46 dB (Noise reduction ON)
Frequency range	70 Hz to 10,000 Hz (± 6 dB) at SP mode
Timer	14 day programmable timer (8 programs)
Dimensions	435 mm(W) x 130 mm(H) x 368 mm(D) 17-1/8"(W) x 5-1/8"(H) x 14-1/4"(D)
Weight	9.3 kg (20.6 lbs)
Provided accessories	Antenna cable (F-type) Cassette tape Matching transformer I.R wireless remote control (RC-905) Battery (type : AA) x 2

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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